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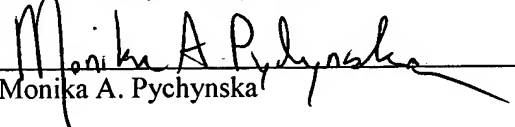
PATENT
Attorney Docket No. VXM-001C

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Vitaliano *et al.*
SERIAL NO.: 10/660,976 GROUP NO.: 1631
FILING DATE: September 11, 2003 EXAMINER: Not yet assigned
TITLE: Quantum Information Processing Elements and Quantum Information
Processing Platforms Using Such Elements

CERTIFICATE OF FIRST CLASS MAILING UNDER 37 C.F.R. 1.8

I hereby certify that this correspondence, and any document(s) referred to as enclosed herein, is/are being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to the **Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450** on this 19th day of July, 2004.


Monika A. Pychynska

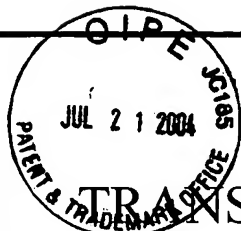
Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith is/are:

Submitted are:

- (1) Transmittal Form (1 pg.);
- (2) Information Disclosure Statement (2 pgs.);
- (3) PTO Form-1449 (6 pgs.);
- (4) copies of references cited (C1-C95); and
- (5) a return receipt postcard.



TRANSMITTAL FORM

Application Serial Number	10/660,976
Filing Date	September 11, 2003
First Named Inventor	Vitaliano
Group Art Unit	1631
Examiner Name	Not yet assigned
Attorney Docket No.	VXM-001C
BATCH NO. (after allowance)	Not applicable
Patent No.	Not applicable
Issue Date	Not applicable

ENCLOSURES (check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Check Attached <input type="checkbox"/> Copy of Fee Transmittal Form	<input type="checkbox"/> Copy of Notice to File Missing Parts of Application (PTO-1553)	<input type="checkbox"/> Notice of Appeal to Board of Patent Appeals and Interferences
<input type="checkbox"/> Amendment/Response <input type="checkbox"/> Preliminary <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Letter to Official Draftsperson including Drawings [Total Sheets _____]	<input type="checkbox"/> Formal Drawing(s)	<input type="checkbox"/> Appeal Brief (in triplicate)
<input type="checkbox"/> Petition for Extension of Time	<input type="checkbox"/> Request For Continued Examination (RCE) Transmittal	<input type="checkbox"/> Status Inquiry
<input checked="" type="checkbox"/> Information Disclosure Statement <input checked="" type="checkbox"/> Form PTO-1449 <input checked="" type="checkbox"/> Copies of IDS References (C1-C95)	<input type="checkbox"/> Power of Attorney (Revocation of Prior Powers)	<input checked="" type="checkbox"/> Return Receipt Postcard
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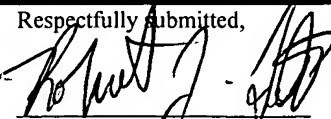
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Date: July 19, 2004
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Respectfully submitted,


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Attorney Docket No. VXM-001C

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Commissioner for Patents
P.O. Box 1450
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INFORMATION DISCLOSURE STATEMENT

Sir:

In accordance with the provisions of 37 C.F.R. 1.97 and 1.98, Applicants hereby make of record the patents and publications listed on the accompanying Form PTO-1449, and other information contained herein, for consideration by the Examiner in connection with the examination of the above-identified patent application. In accordance with the U.S. Patent Office's partial waiver of the requirement under 37 C.F.R. 1.98(a)(2)(i), only copies of the foreign patent documents and non-patent publications are enclosed.

REMARKS

In accordance with the provisions of 37 C.F.R. 1.97, this statement is being filed (CHECK ONE):

- ☒ (1) within three (3) months of the **filing date** of a national application other than a continued prosecution application under 37 C.F.R. 1.53(d), or within three (3) months of the **date of entry of the national stage** as set forth in 37 C.F.R. 1.491 in an international application, or before the mailing of the **first Office action** on the merits, or before the mailing of a **first Office action** after the filing of a request for continued examination under 37 C.F.R. 1.114; or
- ☐ (2) after the period defined in (1) but before the mailing date of a **final action** or a **notice of allowance** under 37 C.F.R. 1.311, and
- ☐ the requisite Statement is below, **OR**

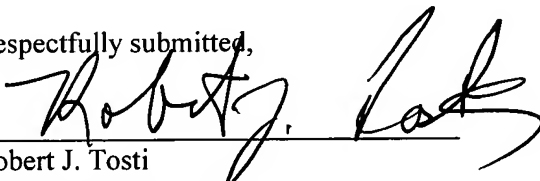
- ☐ the requisite fee under 37 C.F.R. 1.17(p), namely **\$180.00**, is included herein, or
- ☐ (3) after the mailing date of a **final action** or **notice of allowance** but before the payment of the **issue fee**, **AND**
- ☐ the requisite Statement is below, **AND**
- ☐ the requisite petition fee under 37 C.F.R. 1.17(p), namely **\$180.00** is included herein.

It is respectfully requested that each of the patents and publications listed on the attached Form PTO-1449, and other information contained herein, be made of record in this application.

Date: July 19, 2004
Reg. No. 35,393

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Respectfully submitted,


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FORM PTO - 1449 INFORMATION DISCLOSURE STATEMENT	ATTORNEY DOCKET NO.: VXM-001C APPLICANT(S): Vitaliano et al. SERIAL NO.: 10/660,976 FILING DATE: September 11, 2003 GROUP: 1631
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U.S. PATENT DOCUMENTS

EXAM. INIT.	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	A1	4,367,066	01/04/83	Zellweger, S.	434	433
	A2	4,999,842	3/12/91	Huang et al.	372	45
	A3	5,287,377	02/15/94	Fukuzawa et al.	372	45
	A4	5,613,140	03/18/97	Taira, K.	395	800
	A5	5,671,437	09/23/97	Taira, K.	395	800
	A6	5,838,436	11/17/98	Hotaling et al.	356	345
	A7	5,940,193	08/17/99	Hotaling et al.	359	11
	A8	6,437,413 B1	08/20/02	Yamaguchi et al.	257	421
	A9	6,456,994 B1	09/24/02	Tucci, R.	706	52
	A10	6,459,097 B1	10/01/02	Zagoskin, A.	257	31
	A11	6,472,681 B1	10/29/02	Kane, B.	257	14

FOREIGN PATENT DOCUMENTS

EXAM. INIT.	DOCUMENT NUMBER	DATE	COUNTRY CODE	CLASS	SUB CLASS	FILING DATE	ABSTRACT ONLY	ENGLISH LANG (Y/N)

OTHER ART, JOURNAL ARTICLES, ETC.

EXAM. INIT.	OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)
C1	Abe, E. (2001) "ESR on Shallow Donors in Ge," (PowerPoint Presentation)
C2	Barenco et al. (1996) "A short introduction to quantum computation," www.qubit.org/library/intros/comp/comp.html .
C3	Bayer, M. (August 8, 2002) "One at a time, please," <i>Nature</i> 418: 597-598.

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C4	Benjamin et al. (date unknown) "Towards Quantum Information Technology," www.qubit.org/library/intros/nano/nano.html	
C5	Blatt, R. (2001) "Delicate information," <i>Nature</i> 412: 773.	
C6	Borbat et al. (April 19, 2002) "Protein Structure Determination Using Long-Distance Constraints from Double-Quantum Coherence ESR: Study of T4 Lysozyme," <i>J. Am. Chem. Soc.</i> 124: 5304-5314.	
C7	Brown J. (2000) "Minds, Machines and the Multiverse (The Quest for the Quantum Computer)," Chapter 1, Simon & Schuster 2000	
C8	Cheetham et al. (1996) "Inhibition of hsc70-catalysed clathrin uncoating by HSP1 proteins," <i>Biochem J.</i> 319: 103-108.	
C9	Claeysen et al. (November 18, 2002) "A Single Mutation in the 5-HT ₄ Receptor (5-HT ₄ -R D100(3.32)A) Generates a G _s -coupled Receptor Activated Exclusively by Synthetic Ligands (RASSL)," <i>Journal of Biological Chemistry</i> 278: 699-702	
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C11	Coward et al. (1998) "Controlling signaling with a specifically designed G _i -coupled receptor," <i>Proc. Natl. Acad. Sci. USA</i> 95: 352-357	
C12	Crotzer, V. L. et al. (2001) "The Role and Regulation of Clathrin in T cell Receptor Internalization," (Abstract) www.midwconimmunol.org/Midwinter01/posters/crotzer.html	
C13	Deutsch et al. (1998) "Quantum Computation," www.qubit.org/library/intros/PhysicsWorld/PhysicsWorld.html , Page 1 only.	
C14	De Martini et al. (October 24, 2002) "Experimental realization of the quantum universal NOT gate," <i>Nature</i> 419: 815-818	
C15	DiVincenzo, D. (1996) "Gates and Circuits: Sleator-Weinfurter construction: $V^2=U$," <i>Phil Trans. R. Soc. Lond. A</i> : 9-18.	
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C18	Dowling et al. (date unknown) "Electron-Nuclear-Double-Resonance Quantum Computer"	
C19	Follstaedt et al. (2000) "Protein Adhesion on SAM Coated Semiconductor Wafers: Hydrophobic Versus Hydrophilic Surfaces," Sandia Report SAND_2000-3016	
C20	Gad, H. et al. (2000) "Fission and uncoating of synaptic clathrin-coated vesicles are per turbed by disruption of interactions with the SH3 domain of endophilin," <i>Nature</i> 27:301-312 (Abstract only)	
C21	Gad, H. (2000) "Synaptic vesicle endocytosis studied in a living synapse," (Ph.D. Thesis) Karolinska Institute. (conclusions drawn from Ph.D. thesis)	
C22	Gershenfeld et al. (1998) "Quantum Computing with Molecules," <i>Scientific American</i> . June 1998 (www.media.mit.edu/physics/publications/papers/98.06.sciam/0698gershenfeld.html)	

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	C23	Gisin, N. (October 24, 2002) "NOT logic," <i>Nature</i> 419: 797-798.
	C24	Greene et al. (2000) "Complete Reconstitution of Clathrin Basket Formation with Recombinant Protein Fragments: Adaptor Control of Clathrin Self-Assembly," <i>Traffic</i> 1: 69-75.
	C25	Hameroff, S. (date unknown) "What is Consciousness," www.consciousness.arizona.edu/hameroff/slide%20show/slideshow_6.htm
	C26	Hameroff, S. (date unknown) "Quantum computation in brain microtubules? The Penrose-Hameroff "Orch OR" model of consciousness," www.consciousness.arizona.edu/hameroff/Pen-Ham/Orch_OR/Royal%20Society.htm
	C27	Hameroff et al (1998) "Quantum Theory and Human Consciousness," 47-62
	C28	Hardy et al. (2000) "Universal Manipulation of a Single Qubit," Centre for Quantum Computation, Clarendon Laboratory, Department of Physics, University of Oxford.
	C29	Harneit et al. (date unknown) "N@C ₆₀ for Quantum Computing," ...
	C30	Harneit et al. (July 20, 2002) "Architectures for a Spin Quantum Computer Based on Endohedral Fullerenes," <i>Phys. Stat. Sol.</i> 233: 453-461.
	C31	Haucke V., "Molecular Mechanisms of Endocytosis," INABIS '98
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	C33	Hubbell et al. (1998) "Recent advances in site-directed spin labeling of proteins," <i>Current Opinion in Structural Biology</i> 8: 649-656
	C34	Jaksch et al. (date unknown) "Review of quantum computer implementations with quantum optical systems," Institute for Theoretical Physics, Innsbruck (PowerPoint Presentation)
	C35	Kanaseki et al. (1969) "The Vesicle in a Basket: A Morphological Study of the Coated Vesicle Isolated from the Nerve Endings of the Guinea Pig Brain, with Special Reference to the Mechanism of Membrane Movements," <i>Journal of Cell Biology</i> 42: 202-220.
	C36	Keen, description of Keen laboratory research
	C37	Kirchhausen, T. et al. (1997) "Linking cargo to vesicle formation: receptor tail interactions with coat proteins," <i>Current Opinion in Cell Biology</i> 9: 488-495
	C38	Koruga, D. (date unknown) "From Natural to Artificial Molecular Machines," (Abstract 6 th Foresight from the Conference on Molecular Monotechnology) www.foresight.org/Conferences/MNT6/Abstracts/Koruga/
	C39	Laflamme et al. (August 22, 2002) "NMR GHZ" (www.arxiv.org)
	C40	Leuenberger et al. (2001) "Quantum computing in molecular magnets," Department of Physics and Astronomy, University of Basel, Switzerland.
	C41	Liu et al. (1995) "Regulation of Clathrin Assembly and Trimerization Defined Using Recombinant Triskelion Hubs," <i>Cell</i> 83: 257-267

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	C42	Liu et al. (2001) "Observation of coherent optical information storage in an atomic medium using halted light pulses," <i>Nature</i> 409: 490-493
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	C44	Mekis, A. et al. (1995) "Ray chaos and Q-spoiling in Lasing Droplets," <i>Phys. Rev. Lett.</i> 75: 2682-2686
	C45	Mullins, J. (2001) "The Topsy Turvey World of Quantum Computing," <i>IEEE Spectrum</i> : 42-49.
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	C49	Oskin et al. (January 2002) "A Practical Architecture for Reliable Quantum Computers," <i>Computer</i> : 79-87.
	C50	Owen, D.J. (2000) "The structure and function of the $\beta 2$ -adaptin appendage domain," <i>EMBO Journal</i> 19: 4216-4227
	C51	Pan et al. (date unknown) "A Precision Technology for Controlling Protein Adsorption and Cell Adhesion in Biomems," (manuscript)
	C52	Preskill, J. (1997) "Reliable Quantum Computers," (manuscript) California Institute of Technology. (www.arxiv.org)
	C53	Redfern, C. (1999) "Conditional expression and signaling of a specifically designed G_i -coupled receptor in transgenic mice," <i>Nature Biotechnology</i> 17: 165-169
	C54	Recher et al. (2000) "Quantum Dot as Spin Filter and Spin Memory," <i>Physical Review Letters</i> : 85 1962-1965.
	C55	Rieffel et al. (2000) "An Introduction to Quantum Computing for Non-Physicists," <i>ACM Computing Surveys</i> 32: 300-335.
	C56	Searce-Levie et al. (2001) "Engineering receptors activated solely by synthetic ligands (RASSLs)," <i>Trends in Pharmacological Sciences</i> 22: 414-420
	C57	Shih, W. et al. (1995) "A Clathrin-binding Site in the Hinge of the $\beta 2$ Chain of Mammalian AP-2 Complexes," <i>The Journal of Biological Chemistry</i> 270: 31083-31090.
	C58	Smith, T. (date unknown) "Why do I like Clifford Algebras?," www.innerx.net/personal/tsmith/clfpg.html
	C59	Smith, T. (date unknown) "Quantum Consciousness," www.innerx.net/personal/tsmith/QuanCon.html
	C60	Steane, A. (1996) "Quantum Error Correction," www.qubit.org/library/intros/QEC.html

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C61	Steane, A. (1997) "Quantum Computing," Department of Atomic and Laser Physics, University of Oxford, Clarendon Laboratory: 1-65.	
C62	Steane, A. (1998) "Quantum Computing," <i>Reports on Progress in Physics</i> 61: 117-173	
C63	Steane et al. (2000) "Physicists Triumph at Guess My Number," <i>Physics Today</i> , 35-39	
C64	Takei et al. (1998) "Generation of Coated Intermediates of Clathrin-Mediated Endocytosis on Protein-Free Liposomes," <i>Cell</i> 94: 131-141	
C65	Twamley, J. (October 30, 2002) "Quantum cellular automata quantum computing with endohedral fullerenes," (manuscript) (www.arxiv.org)	
C66	Van Koppen, C. J. (date unknown) "Multiple pathways for the dynamin-regulated internalization of muscarinic acetylcholine receptors" (Abstract)	
C67	Vitaliano, F. (2001) "The Next Big Thing That Will Change Absolutely Everything," www.vxm.com/Speed.quantum.html	
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C72	Vitaliano, F. (February 2004) "ExQor: A New NBIC Platform"	
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C74	Volovich I.V. (1999) "Atomic Quantum Computer," (manuscript) (www.arxiv.org)	
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C76	Ybe et al. (1998) "Clathrin self-assembly is regulated by three light-chain residues controlling the formation of critical salt bridges," <i>The EMBO Journal</i> 17: 1297-1303.	
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C79	Ybe et al. (2000) "Molecular Structures of Proteins Involved in Vesicle Fusion," <i>Traffic</i> 1: 474-479.	
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	C82	Centre for Quantum Computation, www.qubit.org (date unknown)
	C83	"Continuous Wave ENDOR," (date unknown)
	C84	"Electron Spin Resonance (ESR)," (2000) Physics 77, Experiment 6
	C85	"EPR Continuous Wave Practice Page," www.bruker-biospin.com/brukerepr/continuouswavepractice.html (date unknown)
	C86	"Genecard for gene CLTCL1," www.rzpd.de/cgi-bin/cards/carddisp?CLTCL1 (date unknown)
	C87	"Introduction to Mass Spectrometry," masspec.scripps.edu/information/intro/chapter3.html (date unknown)
	C88	"pET-15b Vector," (1998), Novagen Catalog
	C89	"pET-23a-d(+) Vectors," (1998), Novagen Catalog
	C90	"QIAexpress - The Complete System," Qiagen Catalog www.qiagen.com/catalog/auto/cget.asp?p=QIAexpress_complete_system (date unknown)
	C91	"Quantum Entanglement: Recent Developments in Teleportation/Entanglement," www.cakes.mcmail.com/StarTrek/teleportation.htm (date unknown)
	C92	"Receptor Mediated Endocytosis," www.erin.utoronto.ca/~w3bio315/RME.htm (date unknown)
	C93	"Simple quantum gates," www.qubit.org/library/intros/comp/inset2.html (date unknown)
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	C95	Harneit, W. (2001) "A fullerene-based electron spin quantum computer," (manuscript)
EXAMINER		DATE CONSIDERED